but was unable to devote funds from his appropriation to send an assistant to Australia, for the reason that congress at that time restricted travel to the limits of the United States. There was an exposition that year in Melbourne, and he, therefore, called upon the late Thomas F. Bayard, at that time secretary of state, and urged that the traveling expenses of an assistant be paid, for this purpose, from the funds set aside for the exhibition by the United States at the Melbourne exposition, and of which the Department of State had control. His request was granted, and Mr. Albert Koebele, an assistant in the Division of Entomology, was sent over, his expenses simply being paid by the Department of State and his salary by the Department of Agriculture. Mr. Koebele secured the ladybirds, and in the meantime another agent of the Department of Agriculture, Mr. D. W. Coquillett, stationed at Los Angeles, Calif., had prepared a gauze tent over an infested orange tree. All of Mr. Koebele's shipments were sent direct to this assistant of the division of entomology, and not to Mr. Craw. It was at the Los Angeles station of the division that the insects were propagated, and from which they were sent, and not until considerably later did Mr. Craw, as an agent of the state board of horticulture, have anything to do with the matter. When he did take it up, however, he prosecuted the work very successfully, and during the remainder of his term of office (he is now in the employ of the territorial government of Hawaii) he did a great and good work with other beneficial insects. Thus it will be seen that the introduction and establishment of the ladybirds were done by Professor Riley's assistants, the expenses of Koebele to Australia being paid by the Deparment of State.

It so happened that one of the United States commissioners to the Melbourne exposition was the late Frank McCoppin, and Mr. McCoppin also recommended that the funds for Mr. Koebele's expenses be paid by the Department of State. Mr. McCoppin always claimed, in his lifetime, the full credit for the whole thing, but the facts are as I have stated, and they are within my immediate knowledge, since at the time I was first assistant to Professor Riley and was intimately acquainted with everything that was going on.

The introduction of this insect was one of Riley's greatest achievements, since it established a principle upon which much good work has since been done in many parts of the world; and it should be stated to his further credit that he was sanguine of success at the start, and that the work was carried through against the predictions of his two oldest assistants, Mr. E. A. Schwarz and myself, both of us having urged against the probability of the establishment in the nearctic life zone of an insect belonging to the Australasian fauna.

To Mr. Craw, therefore, belongs the credit of being, if not the original suggester of the plan, at least one of the first suggesters, and also the credit of having, some time after the introduction and perfect establishment of the insect, had charge of its propagation. To Mr. McCoppin belongs only the credit of having facilitated Mr. Koebele's work by recommending that his expenses be paid from the Melbourne exposition fund. To Riley and the Department of Agriculture belongs the credit of having, by investigations, shown exactly the spot to go for the supposed beneficial insects; for having furnished the man to go to Australia, and having paid his salary; for having induced wholly or partially the secretary of state to consent to the payment of the traveling expenses from the Melbourne exposition fund; for the preparations for the receipt of the beneficial insects at Los Angeles; and for having cared for them and supervised their establishment, propagation and distribution for many months after arrival, thus bringing about the wonderful results which followed.

L. O. Howard.

## NOMENCLATURE AT THE INTERNATIONAL BOTANICAL CONGRESS AT VIENNA.

To the Editor of Science: I have read with much interest Dr. Britton's account in your issue for August 18 of the action in regard to nomenclature taken at the recent International Botanical Congress at Vienna. So far so good. The action seems to have been about what was expected by most Amer-

ican botanists. The failure to recognize the basic principle of generic types, and the absurd recommendation to make exceptions from the rules adopted in the case of over 400 generic names, make it morally certain that these rules will not be final and will not settle the vexed question of nomenclature. It also seems morally certain that these rules will not be even temporarily accepted by the majority of American systematic botanists. I have read Dr. Britton's paper carefully in the hope that I could find either in or between the lines some hint of the position that he, as chairman of the American Nomenclature Commission, intends to take with reference to these really extraordinary rules. I confess, however, that his purpose has been well veiled. The question is one of such immediate interest and importance in view of the publication of the new 'Flora of North America' that I venture to ask for an expression of his views in your columns as to what shall be done next. For my own part I am free to express the opinion that any attempt to conform to the Vienna rules would be most unfortunate and would only serve to postpone still farther the much-desired attainment of practical stability in the use of plant names.

Fortunately for those of us who are interested in the lower cryptogams, the congress has saved us from the necessity of breaking its rules. If it had confessed its incapacity in regard to the higher plants as well, the situation would be far simpler.

F. S. EARLE.

SANTIAGO DE LAS VEGAS, CUBA,
September 7, 1905.

## 'CLON' VERSUS 'CLONE.'

I RECUR to this subject merely to correct the misunderstanding under which Professor Eastman labors, as shown in his recent communication to SCIENCE (XXII., p. 206). In my note setting forth the reasons for preferring the spelling *clone,* I did not state the chief fact on which the argument was based, inasmuch as I assumed that any one interested in the subject would undoubtedly consult Mr. Webber's article,[1] in which the word was originally published. Let it be clearly understood, therefore, that viewed in the abstract, one spelling is as good as another, and Professor Eastman's reasons for preferring *clon* would be quite cogent if it were not for the fact that Mr. Webber expressly states that the word is to be *pronounced* with the long sound of *o*. This being the case, I think no one will venture to dispute the point I have already made, that by the requirements of English speech it must be written *clone* or treated purely as a transliteration from the Greek and written *clōn* (preferably *klōn*). Every one of the examples adduced by Professor Eastman (eon, pæon, autochthon, halcyon) affords proof of this, as they are all pronounced with a short *o*! It is quite true, as Professor Eastman states, that 'linguistic usage does not require that loan words and derivatives from other languages should always preserve the same vowel quantities.' But it does require that if the vowel quantity is to be definitely indicated in pronunciation, as Mr. Webber desires in the case of this word, it must be also indicated by the orthography or by some graphic mark of quantity. Hence the word must be treated lexicographically as either *clōn* or *clone*. If written simply *clon,* everyone would be justified in pronouncing it *clŏn*.

CHARLES LOUIS POLLARD.

SPRINGFIELD, MASS.

[1] SCIENCE, XVIII., 501–503, 1903.

## SPECIAL ARTICLES.

### A DIAGRAM OR CHART FOR FINDING THE SUN'S AZIMUTH.

IN SCIENCE for July 24, 1903, under the title 'On Uses of a Drawing Board and Scales in Trigonometry and Navigation,' I have briefly described such simple apparatus as seemed to be most serviceable in the solution of spherical triangles. What is written here may be regarded as a continuation of that article, because the apparatus there described can be used in place of the azimuth diagram and in ways quite analogous to those here outlined.

Given two sides of a spherical triangle and the included angle, to find one of the remaining angles without first finding the side op-